

AN ANNOTATED, PRELIMINARY CHECKLIST OF THE VASCULAR FLORA OF CAMP BUTNER, NORTH CAROLINA

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ABSTRACT

For the past five years, the Woodlot Forestry Research and Development Program at North Carolina State University has been assisting with the implementation of the Land Condition Trend Analysis (LCTA) program at Camp Butner. A plant inventory has been an ongoing aspect of associated research. This checklist represents a preliminary inventory of the flora of the site, comprising 78 families, 178 genera, and 241 species.

RESUMEN

En los cinco años anteriores, el Woodlot Forestry Research and Development Program de la Universidad del Estado de Carolina del Norte ha estado ayudando con la implementación del programa Land Condition Trend Analysis (LCTA) en Camp Butner. El inventario vegetal ha sido un aspecto de la investigación asociada. Este listado representa un inventario preliminar de la flora local, que comprende 78 familias, 178 géneros, y 241 especies.

The Camp Butner National Guard Training Site ('Camp Butner') in Durham and Granville counties, North Carolina comprises 1975 hectares and includes pine plantations, mixed pine-hardwood forests, and bottomland hardwood forests. For the past five years, the Woodlot Forestry Research and Development Program at North Carolina State University has been assisting with the implementation of the Land Condition Trend Analysis (LCTA) program at Camp Butner (WFRDP 2003). The Land Condition Trend Analysis (LCTA) inventory was instituted by the US Army Construction Engineering Research Laboratory (USACERL) in order to monitor the natural resources on military installations and to provide information for making sound training and land management decisions (Tazik et al. 1992). In association with annual vegetation monitoring, land use assessment, and wildlife monitoring, a plant inventory has also been an ongoing aspect of research at Camp Butner since 2001. This checklist represents a preliminary inventory of the flora of the site.

METHODS

To inventory the vascular plants of Camp Butner, the site was visited numerous times between 2001–2003. Principal collectors of the flora associated with our project include: C. Wiecek, V. Miller, C. Sheats, and K. Summitt. Batson (1952)

also collected in the area. Collected specimens were pressed and dried using standard herbarium techniques and identified using the collections of the North Carolina State University Herbarium (NCSC).

RESULTS AND DISCUSSION

Seventy-eight families, 178 genera, and 241 species are currently known from Camp Butner (Table 1). *Ruellia purshiana* Fern. (Acanthaceae) is known from the site (M. Franklin, pers. comm.), but has not been collected. Taxa are arranged alphabetically within the major subgroups of ferns, gymnosperms, dicots, and monocots. The number of genera, then species follows each family name. Brief habitat descriptions follow each species entry when available. Landscape features for the site are discussed by Hall (1995). Taxonomy follows APGII (APG 2003). Nomenclature primarily follows USDA, NRCS (2002). Specimens are deposited at NCSC, unless otherwise indicated.

The composition of the flora is typical for central North Carolina—the site hosts mixed second growth woodlands, pine plantations, and clearcuts (see also Palmer 1990; Hall 1995). However, compared to other near sites, the flora of Camp Butner is noticeably depauperate (Table 2). The flora of Umstead State Park, which is somewhat larger than Camp Butner, includes about three times as many species (Sawyer 1968). Even floras of sites smaller by an order of magnitude comprise 1.5 to 2 times as many species (Table 2). We suspect two main reasons to explain the relative species poorness of the Camp Butner flora. The majority of the site was not forested as late as 1950 based on black and white (1 to 60,000) photography flown by the US Army in November, 1950. The site now hosts forests that are under higher disturbance regimes from military land use than “nature preserves” such as Durant Park (Skean 1982) or Umstead State Park (Sawyer 1968). Prior to its current ownership, Camp Butner lands were in tobacco cultivation and pastures, as well as host to a WWII prisoner of war camp and artillery range.

Sampling intensity could also be an important factor. Based on comparisons with other floras (Table 3), it appears evident that several large families, including Asteraceae, Fabaceae, Cyperaceae, and Poaceae, remain undersampled in our study and that future efforts must concentrate on increasing representation.

FERNS AND ALLIES

ASPLENIACEAE 1/1

Asplenium platyneuron (L.) B.S.P. (Sheats 106; Wiecek 68) Pine-hardwood mix.

BLECHNACEAE 1/1

Woodwardia areolata (L.) T. Moore (Sheats 107) Pine-hardwood mix.

DENNSTAEDTIACEAE 2/2

Dennstaedtia punctilobula (Michx.) T. Moore (Sheats 92)

Pteridium aquilinum (L.) Kuhn (Sheats 138) Pine forest.

DRYOPTERIDACEAE 3/3

Athyrium filix-femina (L.) Roth ssp. *asplenoides* (Michx.) Hultén (Summitt 148) Near stream.

TABLE 1. Summary of numbers of families, genera, and species of Camp Butner.

	Ferns and allies	Gymnosperms	Dicotyledons	Monocotyledons	Total
Families	8	2	58	10	78
Genera	11	2	139	26	178
Species	11	4	192	34	241

TABLE 2. Comparative floristics of Camp Butner to other sites (F = families; G = genera; S = species).

	Camp Butner ¹ (ca. 4880 ac)			Yates Mill Pond ² (ca. 180 ac)			Durant Nature Park ³ (ca. 237 ac)			White Pines Natural Area ⁴ (ca. 242 ac)			Umstead State Park ⁵ (ca. 5439 ac)		
	F	G	S	F	G	S	F	G	S	F	G	S	F	G	S
Ferns and allies	8	11	11	8	11	15	8	13	18	8	14	19	9	14	15
Gymnosperms	2	2	4	2	2	4	2	2	4	2	2	6	2	2	4
Dicotyledons	58	139	192	72	164	247	83	206	337	86	241	398	92	290	529
Monocotyledons	10	26	34	11	56	96	11	75	128	14	73	139	15	90	186
Total	78	178	241	93	233	362	104	296	487	110	330	562	118	396	734

¹Present study; ²Jones (1971); ³Skean (1982); ⁴Swab (1990); ⁵Sawyer (1968).

TABLE 3. Comparison of species richness of four large families at Camp Butner and other sites.

	Camp Butner ¹			Yates Mill Pond ²			Durant Nature Park ³			White Pines Natural Area ⁴		
	F	G	S	F	G	S	F	G	S	F	G	S
Asteraceae	36			35			54			66		
Fabaceae	22			21			30			30		
Cyperaceae	3			16			24			28		
Poaceae	20			47			62			64		

¹Present study; ²Jones (1971); ³Skean (1982); ⁴Swab (1990).

Onoclea sensibilis L. (Summitt 153) Near stream.
Polystichum acrostichoides (Michx.) Schott
 (Summitt 163; Wiecek 63) Near stream; Pine
 plantation.

LYCOPODIACEAE 1/1

Lycopodium digitatum Dill. ex A. Braun (Sheats
 95) Pine-hardwood mix.

OSMUNDACEAE 1/1

Osmunda cinnamomea L. (Summitt 222) Near
 stream.

POLYPODIACEAE 1/1

Pleopeltis polypodioides (L.) Andrews & Windham
 (Sheats 203) Bottomland hardwoods.

THELYPTERIDACEAE 1/1

Thelypteris noveboracensis (L.) Nieuwl. (Summitt
 223) Near stream.

GYMNOSPERMS**CUPRESSACEAE 1/1**

Juniperus virginiana L. (Sheats 98) Pine-hardwood
 mix.

PINACEAE 1/3

Pinus echinata P. Mill. (Sheats 94) Pine-hardwood upland mix.

Pinus taeda L. (Sheats 136) Pine forest.

Pinus virginiana P. Mill. (Sheats 127) Pine forest.

ANGIOSPERMS**BASAL ANGIOSPERMS AND EUDICOTS****ACANTHACEAE 1/1**

Ruellia caroliniensis (J.F. Gmel.) Steud. (Summitt 218) Roadside.

ADOXACEAE 1/3

Viburnum acerifolium L. (Summitt 213) Near lake.

Viburnum prunifolium L. (Batson 1274, DUKE)

Viburnum rafinesquianum J.A. Schultes (Sheats 147) Bottomland hardwoods.

ALTINGIACEAE 1/1

Liquidambar styraciflua L. (Sheats 77) Upland hardwood mix.

ANACARDIACEAE 2/2

Rhus copallina L. (Sheats 115) Upland hardwoods.

Toxicodendron radicans (L.) Kuntze (Sheats 101) Pine-hardwood mix.

ANNONACEAE 1/1

Asimina parviflora (Michx.) Dunal (Wiecek 15) Bottomland hardwood forest.

APOCYNACEAE 2/2

Apocynum cannabinum L. (Summitt 210) Roadside.

Asclepias tuberosa L. (Sheats 175) Roadside/pine mix.

AQUIFOLIACEAE 1/2

Ilex decidua Walt. (Batson 1029, DUKE)

Ilex opaca Sol. (Sheats 113) Upland hardwoods.

ARISTOLOCHIACEAE 1/4

Hexastylis lewisii (Fern.) H.L. Blomq. & Oost. (Batson s.n.) Bluff.

Hexastylis minor (Ashe) H.L. Blomq. (Wiecek 14) Bottomland hardwood forest.

Hexastylis shuttleworthii (Britton & Baker f.) Small (Summitt 131) Lake edge.

Hexastylis virginica (L.) Small (Sheats 75)

ASTERACEAE 27/36

Achillea millefolium L. (Sheats 125, Sheats 176; Summitt 125) Roadside.

Ambrosia artemisiifolia L. (Wiecek 39) Upland hardwoods.

Antennaria plantaginifolia (L.) Richards (Batson 1314, DUKE)

Anthemis arvensis L. (Sheats 212) Roadside.

Bidens aristosa (Michx.) Britt. (Miller 27) Xeric site, near erosion monitoring plot.

Chrysogonum virginianum L. (Sheats 81; Summitt 81) Roadside slopes; near stream.

Chrysopsis mariana (L.) Ell. (Miller 26; Wiecek 47) Upland hardwoods; Xeric site, near erosion monitoring plot, clearing.

Cirsium horridulum Michx. (Summitt 204; Sheats 126) Roadside.

Conyza canadensis (L.) Cronq. (Sheats 221)

Coreopsis auriculata L. (Sheats 86) Alluvial forest.

Elephantopus tomentosus L. (Batson 1290, DUKE)

Erechtites hieracifolia (L.) Raf. ex DC. (Sheats 222)

Erigeron annuus (L.) Pers. (Sheats 108) Upland hardwoods.

Eupatorium capillifolium (Lam.) Small (Wiecek 71) Pine-hardwood mix.

Eupatorium hyssopifolium L. (Batson 655, DUKE)

Eupatorium rotundifolium L. (Sheats 183; Wiecek 3) Pine plantation/roadside.

Helenium amarum (Raf.) H. Rock (Sheats 167, Sheats 179; Summitt 220) Roadside; pine mix.

Helenium autumnale L. (Sheats 178) Roadside/pine-hardwood mix.

Hieracium gronovii L. (Wiecek 5, Wiecek 48) Loblolly pine plantation and clearings; Upland hardwoods.

Hieracium venosum L. (Sheats 73) Pine-hardwood mix.

Krigia virginica (L.) Willd. (Summitt 206) Roadside.

Leucanthemum vulgare Lam. (Summitt 60; Wiecek 60) Roadside; Pine plantation.

Liatris squarrosa (L.) Michx. (Sheats 199) Pine-hardwood mix/roadside.

Packera anonyma (Wood) W.A. Weber & A. Löve (Summitt 166) Roadside.

Pluchea foetida (L.) DC. (Sheats 140) Pine forest.

Pseudognaphalium obtusifolium (L.) Hilliard & Burt. (Summitt 117; Wiecek 7) Roadside; loblolly pine plantation

Serocarpus asteroides (L.) B.S.P. (Sheats 137, Sheats 172; Summitt 221) Roadside/pine-mix.

Solidago caesia L. var. *curtisii* (Torr. & Gray) Wood (Wiecek 52) Upland hardwoods.

Solidago canadensis L. var. *scabra* Torr. & A. Gray (Batson 640, DUKE)

Solidago nemoralis Ait. (Batson 625, DUKE)

Solidago odora Ait. (Sheats 207) Roadside

Solidago pinetorum Small (Sheats 163) Roadside.

Solidago roanensis Porter (Miller 23) Xeric site, near erosion monitoring plot.

Solidago speciosa Nutt. var. *erecta* (Pursh) MacM. (Wiecek 58) Slope near creek

Symphytotrichum dumosum (L.) Nesom (Wiecek 44) Upland hardwoods.

Taraxacum officinale G.H. Weber ex Wiggers (Summitt 183) Roadside.

BALSAMINACEAE 1/1

Impatiens capensis Meerb. (Sheats 223) Creekside.

BETULACEAE 5/5

Alnus serrulata (Ait.) Willd. (Summitt 207) Streamside.

Betula nigra L. (Sheats 193; Summitt 211) Bottomland hardwoods; streamside.

Carpinus caroliniana Walt. (Sheats 91) Pine-hardwood upland mix.

Corylus americana Walt. (Miller 20) Xeric site, near erosion monitoring plot

Ostrya virginiana (P. Mill.) K. Koch (Summitt 214) Near lake.

BIGNONIACEAE 1/1

Campsis radicans (L.) Seem. ex Bureau (Sheats 103, Sheats 194) Pine-mix.

BRASSICACEAE 4/4

Barbarea verna (P. Mill.) Aschers. (Summitt 129) Roadside.

Cardamine hirsuta L. (Summitt 187) Roadside near stream-crossing.

Draba verna L. (Summitt 185) Roadside.

Teesdalia nudicaulis (L.) Ait. f. (Summitt 186) Roadside.

CAMPANULACEAE 1/4

Lobelia cardinalis L. (Wiecek 35) Knap of Reeds Creek.

Lobelia inflata L. (Wiecek 4) Loblolly pine plantation.

Lobelia puberula Michx. (Wiecek 38) Knap of Reeds Creek

Lobelia spicata Lam. (Sheats 109) Upland hardwoods.

CAPRIFOLIACEAE 1/1

Lonicera japonica Thunb. (Sheats 96) Pine-hardwood mix.

CARYOPHYLLACEAE 2/2

Cerastium fontanum Baumg. ssp. *vulgare* (Hartman) Greuter & Burdet (Summitt 179) Roadside.

Scleranthus annuus L. (Sheats 214) Roadside/pine-mix.

CISTACEAE 1/1

Lechea pulchella Raf. (Sheats 198)

CLUSIACEAE 1/4

Hypericum gentianoides (L.) B.S.P. (Sheats 197) Quarry.

Hypericum hypericoides (L.) Crantz (Sheats 144, Sheats 186; Wiecek 6, Wiecek 19) Loblolly pine plantation; bottomland hardwood forests/roadside.

Hypericum nudiflorum Michx. ex Willd. (Sheats 201) Bottomland hardwoods.

Hypericum punctatum Lam. (Sheats 189; Summitt 217) Bottomland hardwoods; roadside.

CONVOLVULACEAE 1/1

Ipomoea pandurata (L.) G.F.W. Mey. (Miller 32; Sheats 173) Xeric site, near erosion monitoring plot; roadside/pine mix.

CORNACEAE 1/1

Cornus florida L. (Sheats 80; Summitt 156) Pine-hardwood mix; roadside.

EBENACEAE 1/1

Diospyros virginiana L. (Sheats 218) Pine mix.

ERICACEAE 6/8

Chimaphila maculata (L.) Pursh (Sheats 111; Summitt 82) Upland hardwoods.

Gaylussacia frondosa (L.) Torr. & Gray ex Torr. (Summitt 215)

Leucothoe racemosa (L.) Gray (Wiecek 16) Bottomland hardwood forest

Oxydendrum arboreum (L.) DC. (Sheats 88, Sheats 142, Sheats 220) Pine-hardwood upland mix; bottomland hardwoods.

Rhododendron periclymenoides (Michx.) Shinnery (Sheats 89)

Vaccinium fuscatum Ait. (Summitt 84) Upland hardwoods.

Vaccinium pallidum Ait. (Sheats 119, Sheats 209) Pine forest.

Vaccinium stamineum L. (Summitt 145; Wiecek 62) Roadside; Pine plantation.

EUPHORBIACEAE 2/3

Chamaesyce maculata (L.) Small (Sheats 165) Upland hardwoods.

Euphorbia corollata L. (Sheats 188) Bottomland hardwoods.

Euphorbia marginata Pursh (Wiecek 37) Knap of Reeds Creek

FABACEAE 16/22

Albizia julibrissin Durazz. (Sheats 177) Roadside.

Amphicarpaea bracteata (L.) Fern. (Wiecek 40) Upland hardwoods.

Centrosema virginianum (L.) Benth. (Sheats 211)

Cercis canadensis L. (Sheats 104)

Chamaecrista fasciculata (Michx.) Greene (Sheats 157) Pine forest.

Chamaecrista nictitans (L.) Moench (Miller 21) Xeric site, near erosion monitoring plot.

Cytisus scoparius (L.) Link (Sheats 168) Pine mix.

Desmodium nudiflorum (L.) DC. (Summitt 216) Roadside near lake.

Desmodium paniculatum (L.) DC. (Batson 929, DUKE)

Desmodium rotundifolium DC. (Wiecek 43) Upland hardwoods.

Galactia volubilis (L.) Britt. (Batson 980, DUKE)

Gleditsia triacanthos L. (Sheats 123) Pine-hardwood mix.

Lespedeza bicolor Turcz. (Sheats 174, Sheats 210; Wiecek 8) Clearcut; roadside/pine-mix.

Lespedeza cuneata (Dum.-Cours.) G. Don (Miller 22; Sheats 161) Roadside; xeric site, near erosion monitoring plot.

Lespedeza procumbens Michx. (Miller 31) Xeric site, near erosion monitoring plot.

Lespedeza virginica (L.) Britt. (Miller 30) Xeric site, near erosion monitoring plot.

Pueraria montana (Lour.) Merr. (Sheats 164) Upland hardwoods.

Robinia pseudoacacia L. (Sheats 192) Bottomland hardwoods.

Strophostyles umbellata (Muhl. ex Willd.) Britt. (Miller 28; Sheats 187) Xeric site, near erosion monitoring plot; bottomland hardwoods/roadside.

Stylosanthes biflora (L.) B.S.P. (Sheats 180) Roadside.

Tephrosia virginiana (L.) Pers. (Summitt 172) Roadside.

Wisteria sinensis (Sims) DC. (Summitt 89) Roadside.

FAGACEAE 2/9

Fagus grandifolia Ehrh. (Sheats 78) Upland slopes.

Quercus alba L. (Sheats 76) Upland hardwood mix.

Quercus falcata Michx. (Sheats 134) Pine forest.

Quercus marilandica Muenchh. (Sheats 181) Pine-hardwood mix.

Quercus montana Willd. (Sheats 87) Dry oak-hickory mix.

Quercus phellos L. (Sheats 128) Pine forest.

Quercus rubra L. (Sheats 79) Upland hardwood mix.

Quercus stellata Wangenh. (Sheats 135) Pine forest.

Quercus velutina Lam. (Sheats 213)

GENTIANACEAE 1/1

Sabatia angularis (L.) Pursh (Sheats 190; Wiecek 1) Bottomland hardwoods; loblolly pine plantation.

HAMAMELIDACEAE 1/1

Hamamelis virginiana L. (Wiecek 17) Bottomland hardwood forest

JUGLANDACEAE 2/3

Carya alba (L.) Nutt. ex Eil. (Sheats 97, Sheats 149, Sheats 225) Upland forest; bottomland hardwood forest; pine forest.

Carya glabra (P. Mill.) Sweet (Summitt 212) Roadside near lake.

Juglans nigra L. (Sheats 122, Sheats 151) Pine forest; pine-hardwood mix.

LAMIACEAE 4/7

Prunella vulgaris L. (Miller 24; Summitt 24) Xeric site, near erosion monitoring plot; roadside.

Pycnanthemum muticum (Michx.) Pers. (Sheats 185) Bottomland hardwoods.

Pycnanthemum pycnanthemoides (Leavenworth) Fern. (Wiecek 10) Bottomland hardwood forest

Pycnanthemum tenuifolium Schrad. (Sheats 184) Pine plantation/roadside.

Salvia lyrata L. (Summitt 209) Roadside.

Scutellaria elliptica Muhl. ex Spreng. (Sheats 110) Upland hardwoods.

Scutellaria integrifolia L. (Wiecek 69) Pine-hardwood mix.

LAURACEAE 1/1

Sassafras albidum (Nutt.) Nees (Sheats 112, Sheats 146) Bottomland hardwoods; upland hardwoods.

LINACEAE 1/1

Linum sulcatum Riddell var. *sulcatum* (Batson 1013, DUKE)

MAGNOLIACEAE 1/1

Liriodendron tulipifera L. (Sheats 83) Upland oak-hickory mix.

MELASTOMATACEAE 1/1

Rhexia mariana L. (Sheats 171; Summitt 171) Pine mix; roadside.

MORACEAE 2/2

Maclura pomifera (Raf.) Schneid. (Sheats 102) Pine-hardwood mix.

Morus rubra L. (Sheats 124) Pine-hardwood mix.

NYSSACEAE 1/1

Nyssa sylvatica Marsh. (Sheats 226; Summitt 219) Pine hardwood mix; near stream.

OLEACEAE 1/1

Fraxinus americana L. (Batson 1141, DUKE)

ONAGRACEAE 2/3

Ludwigia decurrens Walt. (Sheats 224)

Oenothera biennis L. (Summitt 132) Ditch.

Oenothera fruticosa L. (Sheats 93) Roadsides.

OROBANCHACEAE 3/3

Agalinis purpurea (L.) Pennell (Wieck 46) Upland hardwoods.

Aureolaria virginica (L.) Pennell (Sheats 191) Bottomland hardwoods.

Epifagus virginiana (L.) W. Bart. (Wieck 56) Slope near creek

OXALIDACEAE 1/3

Oxalis corniculata L. (Wieck 54)

Upland hardwoods.

Oxalis stricta L. (Sheats 205; Summitt 170) Roadside.

Oxalis violacea L. (Summitt 191; Wieck 36) Knap of Reeds Creek; near stream.

PAULOWNIACEAE 1/1

Paulownia tomentosa (Thunb.) Sieb. & Zucc. ex Steud. (Sheats 150) Pine forest.

PHYRMACEAE 1/1

Mimulus alatus Ait. (Sheats 200) Bottomland hardwoods.

PHYTOLACCACEAE 1/1

Phytolacca americana L. (Sheats 139) Pine forest.

PLANTAGINACEAE 2/4

Nuttallanthus canadensis (L.) D.A. Sutton (Summitt 195) In clearcut.

Plantago aristata Michx. (Sheats 152) Pine forest.

Plantago rugelii Dcne. (Sheats 206) Roadside.

Plantago virginica L. (Summitt 208) Roadside.

PLATANACEAE 1/1

Platanus occidentalis L. (Sheats 90) Alluvial forest (streamside).

POLYGALACEAE 1/1

Polygala curtisii Gray (Sheats 169; Summitt 9; Wieck 9) Clearcut; roadside.

PORTULACACEAE 1/1

Claytonia virginica L. (Summitt 193) Along creek.

RANUNCULACEAE 4/4

Hepatica nobilis Schreb. var. *obtusata* (Pursh) Steyermark (Sheats 114; Summitt 188) Upland hardwoods; along streambank.

Ranunculus abortivus L. (Summitt 182) Grass/pine border.

Thalictrum thalictroides (L.) Eames & Boivin (Summitt 189) Streambank

Xanthorhiza simplicissima Marshall (Sheats 202) Creekside.

ROSACEAE 10/12

Amelanchier arborea (Michx. f.) Fern. (Summitt 114, Summitt 224) Forest edge.

Crataegus flava Ait. (Sheats 133) Pine forest.

Fragaria virginiana Duchesne (Batson 744, DUKE)

Malus angustifolia (Ait.) Michx. (Sheats 208) Pine-hardwood mix.

Porteranthus trifolius (L.) Britt. (Sheats 74) Pine-hardwood mix.

Potentilla canadensis L. (Sheats 84, Summitt 85) Roadside.

Potentilla simplex Michx. (Batson 738, DUKE)

Prunus serotina Ehrh. (Sheats 162) Roadside.

Pyrus communis L. (Sheats 154) Pine forest.

Rosa carolina L. (Batson 878, DUKE)

Rubus argutus Link (Summitt 137) Roadside.

Rubus trivialis Michx. (Sheats 82)

RUBIACEAE 4/6

Diodia teres Walt. (Miller 29; Sheats 204) Roadside.

Xeric site, near erosion monitoring plot

Galium circaezans Michx. (Wieck 11, Wieck 41) Bottomland hardwood forest; Upland hardwoods.

Galium pilosum Ait. (Sheats 130) Bottomland hardwoods.

Galium triflorum Michx. (Wieck 42) Upland hardwoods.

Houstonia caerulea L. (Summitt 180, Summitt 181) Roadside.

Mitchella repens L. (Wiecek 64) Pine plantation.

SALICACEAE 1/1

Salix nigra Marsh. (Sheats 141) Bottomland hardwoods.

SAPINDACEAE 1/1

Acer rubrum L. (Sheats 72) Pine-hardwood mix.

SAXIFRAGACEAE 1/1

Heuchera americana L. (Summitt 159) Near streambank.

SIMAROUBACEAE 1/1

Ailanthus altissima (P. Mill.) Swingle (Sheats 160) Roadside.

SOLANACEAE 1/1

Solanum carolinense L. (Sheats 116) Pine forest.

SYMPLOCACEAE 1/1

Symplocos tinctoria (L.) L'Hér. (Sheats 196) Pine-hardwood mix/roadside.

ULMACEAE 1/1

Ulmus alata Michx. (Batson 797, DUKE)

VIOLACEAE 1/2

Viola × *primulifolia* L. (pro sp.) [*lanceolata* × *macloskeyi*] (Summitt 143) Roadside.

Viola tricolor L. (Summitt 184) Roadside.

VITACEAE 2/3

Parthenocissus quinquefolia (L.) Planch. (Batson 1043, DUKE)

Vitis aestivalis Michx. (Batson 1044, DUKE)

Vitis rotundifolia Michx. (Wiecek 65) Pine-hardwood mix.

MONOCOTS

ALLIACEAE 1/2

Allium ampeloprasum L. (Sheats 159)

Allium vineale L. (Summitt 158) Near streambank.

AMARYLLIDACEAE 1/1

Narcissus sp. (Summitt 75) Roadside.

COMMELINACEAE 1/1

Commelina communis L. (Wiecek 34) Knap of Reeds Creek

CYPERACEAE 3/3

Carex crinita Lam. (Wiecek 18) Bottomland hardwood forest

Cyperus retrorsus Chapman (Sheats 219)

Scirpus cyperinus (L.) Kunth (Wiecek 55) Upland hardwoods.

IRIDACEAE 2/2

Iris verna L. (Sheats 156, Sheats 182) Pine plantation/roadside.

Sisyrinchium angustifolium P. Mill. (Summitt 205) Roadside.

LILIACEAE 1/1

Erythronium americanum Ker-Gawl. (Summitt 190) Lake edge.

MELANTHIACEAE 1/1

Trillium catesbaei Ell. (Sheats 85)

ORCHIDACEAE 2/3

Goodyera pubescens (Willd.) R. Br. ex Ait. f. (Summitt 192) Along creek.

Spiranthes cernua (L.) L.C. Rich. (Wiecek 59) Pine plantation.

Spiranthes praecox (Walt.) S. Wats. (Wiecek 57) Slope near creek

POACEAE 13/20

Andropogon ternarius Michx. (Wiecek 70) Pine-hardwood mix.

Chasmanthium latifolium (Michx.) Yates (Wiecek 12) Bottomland hardwood forest.

Chasmanthium laxum (L.) Yates (Wiecek 49) Upland hardwoods.

Chasmanthium sessiliflorum (Poir.) Yates (Wiecek 53) Upland hardwoods.

Danthonia sericea Nutt. (Sheats 118) Pine forest/roadside.

Danthonia spicata (L.) Beauv. ex Roemer & J.A. Schultes (Batson 338, DUKE)

Dichanthelium laxiflorum (Lam.) Gould (Sheats 215; Batson 475, DUKE)

Dichanthelium sphaerocarpon (Ell.) Gould (Wiecek 2) Loblolly pine plantation.

Echinochloa crus-galli (L.) Beauv. (Sheats 227)

Elymus hystrix L. (Sheats 120) Pine forest.

Holcus lanatus L. (Sheats 153)

Microstegium vimineum (Trin.) A. Camus (Sheats 100; Wiecek 67) Pine-hardwood mix; Pine-hardwood mix.

Panicum anceps Michx. (Sheats 217; Wiecek 51) Upland hardwoods; roadside.

Panicum dichotomiflorum Michx. (Wiecek 61) Pine plantation.

Paspalum floridanum Michx. (Miller 33) Xeric site, near erosion monitoring plot.

Paspalum notatum Flueggé (Sheats 216) Roadside.

Pennisetum glaucum (L.) R. Br. (Wiecek 66) Pine-hardwood mix.

Saccharum brevibarbe (Michx.) Pers. var. *contortum* (Ell.) R. Webster (Wiecek 50) Upland hardwoods.

Schizachyrium scoparium (Michx.) Nash (Wiecek 45; Batson 406, DUKE) Upland hardwoods.

SMILACACEAE 1/1

Smilax rotundifolia L. (Sheats 99) Pine-hardwood mix.

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REFERENCES

- ANGIOSPERM PHYLOGENY GROUP. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. Bot. J. Linn. Soc. 141: 399–436.
- BATSON, W., JR. 1952. Floristics of the Iredell soil series in the central Piedmont of North Carolina. Ph.D. dissertation, Duke University, Durham.
- HALL, S. 1995. Inventory of the wildlife habitats, movement corridors, and rare animal population of Durham County, North Carolina. North Carolina Natural Heritage Program, Raleigh.
- JONES, S.I. 1971. Floristic survey and vegetational analysis of Yates Pond Biological Area in Wake County, North Carolina. M.S. Thesis, North Carolina State University, Raleigh.
- PALMER, M.W. 1990. Vascular flora of the Duke Forest, North Carolina. Castanea 55:229–244.
- SAWYER, G.P., JR. 1968. The vascular flora of William B. Umstead State Park, Wake County, North Carolina. M.A. Thesis, University of North Carolina-Chapel Hill.
- SKEAN, J.D., JR. 1982. The vascular flora and plant community types of Durant Nature Park, Wake County, North Carolina. North Carolina State University, Raleigh. M.S. Thesis, North Carolina State University, Raleigh.
- SWAB, E.C. 1990. The flora and vegetation of White Pines Natural Area, Chatham County, North Carolina. North Carolina State University, Raleigh. M.S. Thesis, North Carolina State University, Raleigh.
- TAZIK, D.J., S.D. WARREN, V.E. DIERSING, R.B. SHAW, R.J. BROZKA, C.F. BAGLEY, and W.R. WHITWORTH. 1992. U.S. Army land condition-trend analysis (LCTA) plot inventory field methods. USACERL Tech. Rep. N-92/93. U.S. Army Corps of Engineers.
- USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- WOODLOT FORESTRY RESEARCH AND DEVELOPMENT PROGRAM. 2003. Camp Butner Training Site Land Condition Trend Analysis (LCTA) Program: Progress Report for the 2002 Field Season. NC State University, Raleigh.